

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of the claims in the application:

Listing of Claims:

1. (Original) A chemical vapor deposition system comprising: a cleaning gas source configured to generate a reactive cleaning gas; and a chemical vapor deposition chamber including a processing gas shower, a cleaning gas distribution channel separate from the processing gas shower, and a plurality of cleaning gas injection ports fluidly connected to the cleaning gas distribution channel and disposed to introduce the cleaning gas into an interior of the chemical vapor deposition chamber.
2. (Original) The chemical vapor deposition system of claim 1, wherein the cleaning gas distribution channel and plurality of cleaning gas injection ports are disposed within a lid of the chemical vapor deposition chamber.
3. (Original) The chemical vapor deposition system of claim 1, wherein the cleaning gas source is configured to generate reactive fluorine species.
4. (Original) The chemical vapor deposition system of claim 1, wherein the cleaning gas source is configured to generate a reactive cleaning gas for cleaning byproducts of WSi_x film generation.
5. (Original) The chemical vapor deposition system of claim 1, wherein the plurality of cleaning gas injection ports include a first subset of the plurality of cleaning gas injection ports disposed at a first angle relative to side walls of the chemical vapor deposition chamber, and a second subset of the plurality of cleaning gas injection ports disposed at a second angle relative to the side walls.

6. (Original) The chemical vapor deposition system of claim 1, wherein the plurality of cleaning gas injection ports are distributed along an interior rim of a lid of the chemical vapor deposition chamber.

7. (Original) The chemical vapor deposition system of claim 1, further including internal plumbing configured to transport the reactive cleaning gas to the cleaning gas distribution channel, the internal plumbing being disposed within a wall of the chemical vapor deposition chamber.

8. (Original) The chemical vapor deposition system of claim 1, further including a plurality of channel openings configured for reactive cleaning gas to enter the cleaning gas distribution channel.

9. (Original) The chemical vapor deposition system of claim 1, further including a chamber collar configured to separate a lid of the chemical vapor deposition chamber from walls of the chemical vapor deposition chamber, the chamber collar including internal plumbing configured to supply reactive cleaning gas to the cleaning gas distribution channel.

10. (Original) The chemical vapor deposition system of claim 1, wherein the plurality of cleaning gas injection ports are configured to deliver a greater concentration of reactive cleaning gases to a cooler region of a chemical vapor deposition chamber than to a warmer region of the chemical vapor deposition chamber.

11. (Original) A chemical vapor deposition chamber lid comprising: a cleaning gas distribution channel disposed within a perimeter of the chemical vapor deposition chamber lid and configured to circulate a reactive cleaning gas; a plurality of cleaning gas injection ports configured to deliver the reactive cleaning gas from the cleaning gas distribution channel to an interior of a chemical vapor deposition chamber, the cleaning

gas injection ports distributed around the chemical vapor deposition chamber lid and configured to deliver a greater concentration of the reactive cleaning gas to an upper region of the chemical vapor deposition chamber than to a lower region of the chemical vapor deposition chamber; and internal plumbing configured to supply the reactive cleaning gas to the cleaning gas distribution channel.

12. (Original) The chemical vapor deposition chamber lid of claim 11, further including a lid section configured to support a processing gas shower, the processing gas shower being separate from the cleaning gas distribution channel.

13. (Original) The chemical vapor deposition chamber lid of claim 11, further including a processing gas shower separate from the internal plumbing.

14. (Original) The chemical vapor deposition chamber lid of claim 11, wherein the plurality of cleaning gas injection ports include a first subset of the plurality of cleaning gas injection ports disposed at a first angle relative to an edge of the chemical vapor deposition chamber lid, and a second subset of the plurality of cleaning gas injection ports disposed at a second angle relative to the edge.

15. (Original) The chemical vapor deposition chamber lid of claim 11, wherein the cleaning gas distribution channel has a cross-section ten or more times greater than a cross-section of one of the plurality of cleaning gas injection ports.

16. (Original) The chemical vapor deposition chamber lid of claim 11, wherein the plurality of cleaning gas injection ports are configured to deliver a greater concentration of reactive cleaning gases to a cooler region of a chemical vapor deposition chamber than to a warmer region of the chemical vapor deposition chamber.

17. (Withdrawn) A method of cleaning a chemical vapor deposition chamber, the method comprising: generating a reactive cleaning gas; transporting the reactive

cleaning gas to a cleaning gas distribution channel, the cleaning gas distribution channel being separate from any processing gas shower head; circulating the reactive cleaning gas around a perimeter of the lid; passing the reactive cleaning gas into the interior of the chemical vapor deposition chamber using a plurality of cleaning gas injection ports disposed in the lid; and generating a desired concentration gradient of the reactive cleaning gas in the chemical vapor deposition chamber.

18. (Withdrawn) The method of claim 17, wherein the reactive cleaning gas is passed into the interior of the chemical vapor deposition chamber at a variety of angles responsive to angles of the cleaning gas injection ports.

19. (Withdrawn) The method of claim 17, wherein the desired concentration gradient includes a greater concentration near cooler elements within the chemical vapor deposition chamber than near warmer elements.

20. (Withdrawn) The method of claim 17, wherein cleaning gas includes reactive fluorine species.

21. (Original) A chemical vapor deposition system comprising: means for transporting a reactive cleaning gas to a cleaning gas distribution channel disposed in a lid of the chemical vapor deposition chamber; means for circulating the reactive cleaning gas around a perimeter of the lid; means for passing the reactive cleaning gas into the interior of the chemical vapor deposition chamber; and means for generating a desired concentration gradient of the reactive cleaning gas in the chemical vapor deposition chamber, the desired concentration gradient including a greater concentration near cooler elements within the chemical vapor deposition chamber than near warmer elements.